

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/013004

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-17 as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-22 received by this Authority on 01.06.2005 with letter of 01.06.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/5-5/5 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-22</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims <u>1-22</u>	YES
		Claims _____	NO
	Industrial applicability (IA)	Claims <u>1-22</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	<p>This report makes reference to the following document:</p> <p>D1: PATENT ABSTRACTS OF JAPAN, Vol. 1997, No. 06, 30 June 1997 (1997-06-30) &amp; JP 09 051659 A (ASMO CO LTD), 18 February 1997 (1997-02-18)</p> <p>1. Document D1 is regarded as the prior art closest to the subject matter of claim 1.</p> <p>Document D1 discloses in figure 5(c), in connection with figure 2, a commutator for an electric machine, the commutator comprising a support (3) produced from an insulating moulded compound, a plurality of metallic conductor segments (2) uniformly arranged on the support, around the commutator axis, with connection elements arranged thereon for a rotor winding (see figure 2), as well as an anti-interference device (6) to which the conductor segments (2) are connected in an electroconducting manner. The anti-interference device comprises a number of individual anti-interference elements (6) which corresponds to the number of conductor segments, the anti-interference elements (6) being arranged around the commutator axis, and the same number</p>		

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	<p>of contact bridges (7a), each contact bridge interconnecting two adjacent anti-interference elements (6) in an electroconducting manner (see paragraphs [0019] and [0022]).</p> <p>Each of the contact bridges (7a) comprises two branches (71a) connected with the two associated anti-interference elements (6) in an electroconducting manner. Since the contact bridges are designed as springs (see abstract, "resilient body") the branches naturally yield towards one another in the circumferential direction. Moreover, the branches are oriented (radially) "inwards" in relation to part (5).</p> <p>The contact bridges (7a) comprise a base section (72a) connected with the associated conductor segment in an electroconducting manner. The base section is oriented outwards in relation to the conductor segments (i.e. the base section is located radially outside of the support).</p> <p>The subject matter of claim 1 differs from the commutator described in D1 only in that the contact bridges are welded or glued in the area of their branches to the associated anti-interference elements and in the area of their base section to the associated conductor segments.</p> <p>The technical effect of this feature is a more robust commutator.</p> <p>This feature is known <i>per se</i>, but would not be considered by a person skilled in the art proceeding from D1 because it goes against the general teaching of D1 (see D1,</p>

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paragraph [0008])).

The subject matter of claim 1 of the present application therefore involves an inventive step (PCT Article 33(3)).

**2.** The subject matter of claim 18 of the present application also involves an inventive step (PCT Article 33(3)) because this process claim includes all the corresponding features of claim 1.

**Box No. VIII** Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**1.** The terms "inwards" and "outwards" are unclear because no reference is given for interpreting their meaning ("inwards" or "outwards" of what?). Claim 12 is thus unclear (PCT Article 6).

**2.** This lack of clarity is even more important because the corresponding technical feature is supposed to be at the origin of the technical effect of the invention, i.e. the small size of the commutator.